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Evaluation of the educ'l. program in the Weeks junior high School, Newton Centre, Mass.

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EVALUATION OF THE EDUCATIONAL GUIDANCE PROGRAM IN THE WEEKS JUNIOR HIGH SCHOOL, NEWTON CENTRE, MASSACHUSETTS

Submitted by

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CHAPTER I

THE PURPOSE AND SCOPE OF THIS STUDY

Purpose of this study.-- This study is concerned with one aspect of the validity of the educational guidance program of the Weeks Junior High School. More specifically, it is concerned with the success or failure of pupils in the high-school curricula selected by them and approved or disapproved by their advisers in junior high school.

Organization for guidance in the Weeks Junior High School.-- In the guidance setup of this school there are three main factors: the homeroom teacher, the classroom teacher, and the counselors. Of these three the most important is the homeroom teacher. Because of the nature of the school organization she is also a subject-matter teacher of her group, is responsible for their conduct about the building, and has charge of all data regarding her pupils which the school possesses. The homeroom, therefore, serves as a clearing house for the whole guidance department. The classroom teachers act as advisers in their particular subject-matter field. They are responsible for explaining to their pupils the content of their subject, the sequential courses which follow it, and the requirements for success in that field. The counselors consist of three men and three women, two for each grade. The women act as advisers for the girls, and the men for the boys of a particular grade during the three years the pupils are in school.

When a homeroom teacher needs help in handling a maladjusted pupil in her room, she turns to her grade counselors.

Guidance procedure in the Weeks Junior High School.-- To make the guidance objectives possible of achievement, the school is so organized that small groups of homeroom teachers, subject-matter teachers, and counselors who are dealing with the same divisions of pupils can meet at regular intervals for an exchange of experiences. To these round-table conferences are invited the city psychologist, the visiting teacher, the school nurse, the juvenile-probation officer, and a representative from the Newton Family Service Bureau. Not only do these visitors attend practically every meeting, but they take an active part in the discussions, and have proved of great assistance to teachers and counselors in solving many of their problems. Thus a cooperative study of individual pupils is made, resulting, the teachers feel, in better pupil diagnosis and a more unified plan of treatment than if undertaken by one person alone. The reports of these studies, covering a period of three years, are sent (with the pupils) to the Newton Senior High School at the end of the ninth year.

The problem with which the study is concerned.-- One of the problems which every child encounters during his three years in the junior high school is the choice of electives for the ensuing year. In the seventh grade this is a comparatively simple matter, his choice being limited to one subject from four offerings: art, music, practical arts, and study. At the close of the eighth grade the choice of electives is increased, for this time he is allowed to choose four subjects--

two full-time and two part-time. Therefore, when toward the end of the ninth year he is called upon to select a curriculum for the Newton High School, he has already had some experience in making choices.

Early in the spring each ninth-grade pupil is given a copy of the "Guidance Booklet," which contains an explanation of the offerings of the Newton Senior High School. These are studied carefully under the supervision of the social-studies teachers, and pupils are urged to take them home and discuss the contents with their parents. After several weeks of thoughtful preparation, the pupil chooses the curriculum which he wishes to follow in the senior high school, and it is marked "approved" or "not approved" by his subject teachers, his home-room teacher, and, in problem cases, by his counselor. Whenever there is a question in the mind of a teacher as to a pupil's ability to follow a certain curriculum, she usually gives him the benefit of the doubt, but because of the insistence of parents that their children elect subjects which the teachers feel are too difficult for them, a number of pupils are sent each year to the high school with their registration blanks marked "not approved."

When this study was made, the Newton High School offered the following ten curricula:

1. Language--for pupils who intend to qualify for colleges requiring the College Board examinations.
2. Mathematics--for pupils who plan to enter technological colleges or engineering courses of colleges requiring the College Board examinations.

3. Certificate--for pupils who wish to prepare for colleges that admit by certificate.
4. Academic I--for pupils who plan to enter teachers' colleges, kindergarten training schools, business colleges, and junior colleges.
5. Academic II--for pupils who wish to enter hospital training schools.
6. Academic III--for pupils who plan to enter schools of art.
7. Academic IV--for those pupils who wish to specialize in music.
8. Academic V--for pupils who desire a general high-school course which will prepare them for entrance to certain fields of employment not requiring specialized preparatory training.
9. Business--primarily for boys who intend to enter the commercial world after graduation from high school.
10. Office Training--for girls who wish to become typists, stenographers, secretaries, cashiers, or office assistants.

The procedure for the solution of the problem.-- In anticipation of this study, careful records were kept in the Weeks Junior High School of the 947 pupils who were promoted to the Newton High School in 1938, 1939, and 1940. These records furnished the following information for each pupil: the intelligence quotient, the average mark for the ninth grade in all major subjects, the curriculum choice for the senior high school, and the adviser's approval or disapproval of this choice. A study of the Newton High School's records disclosed

these facts: the final marks in all major subjects for Grades X, XI, and XII, any changes in curricula, and reasons for leaving school before graduation.

From the above information the writer has attempted to answer the following questions:

1. How many of the Weeks pupils who entered the Newton High School in 1938, 1939, and 1940 succeeded in maintaining a passing mark or better in the curriculum selected in Grade IX or an equally difficult curriculum?
2. What was the relationship between the pupils' success and the advisers' approval or disapproval of their curriculum choices?
3. How did the marks received in Grade IX compare with those received in Grades X, XI, and XII?
4. What was the relationship, if any, between the intelligence quotients and the marks received in Grades IX, X, XI, and XII?

Obstacles encountered in the study.-- In the early stages of this study two serious obstacles appeared: (1) the differences in the marking systems of the junior and senior high schools; (2) the effect of the popularity of private schools upon the factors determining the success or failure of pupils in the Newton High School.

Concerning the first obstacle it should be said that the Newton junior high schools have a four-point marking system; namely, from highest to lowest, 1--2--3--4. The Newton Senior High School, on the other hand, uses a five-point scale; namely, from highest to lowest,

A--B--C--D--F. To compare the marks received by the same pupil in the two schools, it was necessary to reduce them to a common numerical basis. The first step in this process was to find the average mark received by the pupil in each grade. In the ninth grade, where a numerical system of marking is in use, this was a comparatively simple matter, but in Grades X, XI, and XII it was necessary to give to the letters A, B, C, D, and F the numerical values of 1, 2, 3, 4, and 5 before the average mark for each pupil could be obtained. Then the true mean and standard deviation were computed.[1] By dividing the average mark for each pupil in a given grade by the standard deviation for that grade a sigma score was obtained for each of the 830 pupils listed in the study. Since, in this process, A was given the value of 1, the lowest of the sigma scores found on the tables in Chapter II have the highest value.

With reference to the second obstacle it should be noted that usually a pupil who withdraws from high school to enter private school does so because of his failure to maintain the standards required of his grade. This, however, is not true in Newton, for there many parents plan to give their children, irrespective of their marks, one or more years in a private school before entering college. Therefore, in determining the success or failure of such pupils in their chosen curriculum, the writer has considered as successful those whose mark at the time of withdrawal was passing or better.

1/Roy O. Billett, Fundamentals of Secondary-School Teaching, Houghton Mifflin Company, Boston, 1940, pp. 632-633.

Related studies.-- Although the reports of no similar investigations could be found, the writer discovered several interesting related studies. A brief summary of three follows.

1. "Can Success in High School Be Predicted at the End of Grade IX?" R. L. Herbst[1/]

This study was undertaken in 1934 by R. L. Herbst and Dr. John Skillings, assistant state superintendent in charge of secondary schools in Delaware. Its purpose was to determine to what extent the pupils enrolled in Grade IX in the Delaware High Schools, outside of Wilmington, had selected the subjects best suited to their capacities and interests.

Using as a basis of their study the results of intelligence and subject-matter tests, personal ratings, and teachers' marks, the total number of pupils in the study (1334) was divided into three groups, designated as A, B, and C. It was believed that Group A, which included 81 per cent of the total number would succeed in the subjects which they had selected; that Group B, which comprised 10.3 per cent of the entire number, would meet with difficulty because they had not selected the subjects suited to their capacities and interests; and that Group C, which included 8.7 per cent, would not be successful because the high school did not offer the subjects which they probably should take.

In December, 1936, a follow-up study of the same pupils was made to determine the accuracy of the predictions. Each school involved was

1/School Review (September, 1937), 45: 508-515.

visited, and the educational standing and whereabouts of the pupils were investigated. Some of the conclusions reached as a result of this study were as follows:

a. It is difficult to predict with any degree of accuracy the educational standing or whereabouts of young people four years after they enter high school.

b. Both educational and vocational guidance must continue through high school.

c. A further study should be made to determine the reasons for the elimination of pupils from the high school.

Despite the fact that this study did not succeed in achieving its purpose, it did show the need of a carefully planned and continuous guidance program in the Delaware schools.

2. "Determining College Ability during Junior-High-School Years," W. H. Billhartz, Jr. and P. W. Hutson[1/]

The purpose of this study was to investigate the possibility of predicting college ability during a pupil's junior-high-school life.

Pittsburgh, Pennsylvania, was selected as the city for this investigation because it had already gathered extensive data on its seventh grade pupils. From the folders of the 4316 children who comprised the study, the following records were taken: (1) junior-high-school marks in academic subjects; (2) Stanford Achievement Test percentile scores in all the major subjects; (3) intelligence quotients.

From the total number of 4316 pupils in the seventh grade, the

1/ School and Society (April 26, 1941), 53: 547-552.

college records of 282 were available. A study of the latter group, five-eighths of whom had had two years of college work, showed a positive relationship between junior-high-school scholarship and college success. Moreover, a further study showed that the intelligence quotients and the percentile scores had low predictive value. Since both junior-high-school and college marks represent a combination of ability and effort, the writers of this article feel that the former appear to be a good predictor of college success.

The small number of college records on which the above conclusions are based might lead the reader to question their soundness. However, the findings are most interesting and bear out the opinion of the majority of experienced secondary-school teachers.

3. "The Intelligence and Later Scholastic Success of Sixth-Grade Pupils," Viola E. Benson[1/]

This is a report of a follow-up study of 1686 pupils in the sixth grades of Minneapolis to determine the relationship between their intelligence quotients and the grade level which each attained.

The study reveals that pupils with lower I.Q.'s drop out of school earlier than those with higher I.Q.'s. However, an analysis of individuals indicates that factors other than intelligence often affect scholastic success. The results of the study show that "IQ's obtained in the later elementary grades are not without significance in estimating the probable subsequent scholastic career."

This study, while most carefully done, adds little of value to

1/School and Society (February 7, 1942), 55: 163-167.

the wealth of material already published on the significance of the intelligence quotient.

In Chapter II the writer will present in tabular form an analysis of the achievement and progress of the 947 pupils who form the basis of this study.

CHAPTER II

AN ANALYSIS OF THE ACHIEVEMENT AND PROGRESS OF 947 JUNIOR-HIGH-SCHOOL PUPILS

As indicated in Chapter I, 947 Weeks Junior High School pupils were promoted to the Newton High School in 1938, 1939, and 1940, but 117, or 12 per cent, did not enter the latter school (Columns 4, 5, and 6, Table 1).

Table 1. Numbers of Pupils Promoted to Newton High School in 1938, 1939, and 1940; Numbers That Entered the High School, Went to Private Schools, Moved from City, or Failed to Enter for Other Reasons.

Years	Numbers				
	Promoted to Newton High School	Entered Newton High School	Entered Private School	Moved from City	Failed to Enter for Other Reasons
(1)	(2)	(3)	(4)	(5)	(6)
1938	302	267	14	13	8
1939	332	291	15	21	5
1940	313	272	13	20	8
Total	947	830	42	54	21

The large number that transferred to private schools is typical of the community, while the still greater number that moved from the city was due undoubtedly to the increase of defense work in Boston and its environs. Of the 26 pupils who failed to enter high school, two

left because of ill health, 10 entered Trade School, and 14 went to work. The total number was thus reduced to 830 pupils.

The junior high schools in Newton have no designated curricula, but the ninth-grade pupils, because of their elective choices, fall naturally into three groups: college-preparatory, business, and academic or general. To facilitate comparison between the junior and senior high schools, the 830 pupils of this study are listed under the curricula which they elected for the Newton High School.

Since the pupils in the academic curricula I, II, III, and IV are of the same type and ability, with similar objectives, they have been listed together. Although it was not so intended, academic V has developed into a sort of catchall for pupils with limited ability, and, therefore, this group has been separated from the others for study purposes.

When this investigation was made, the pupils who were promoted to the high school in 1938 and 1939 had been graduated from that school, but the class of 1940 had completed only half of its senior year. Therefore, in computing the Grade XII sigma score for this latter group, the mid-year marks were used.

In November, 1942, the Newton High School, because of war-time pressure, introduced a cooperative high-and-trade-school curriculum, whereby seniors were allowed to spend alternate weeks in each of these schools, and received in addition to their high-school diploma, a trade-school certificate. As indicated in Table 2, the Weeks pupils who availed themselves of this opportunity were members of academic V and the business curricula.

Table 2. List of Pupils by Curricula Who Entered Newton High School between 1938 and 1940 Inclusive, Their Intelligence Quotients, Teachers' Approval or Disapproval of Curriculum Choices, and the Average Sigma Score for Grades IX, X, XI, and XII.

Language Curriculum--Boys

Pupil	Intelligence Quotient	Curriculum Choice		Average Sigma Scores			
		Approved	Not Approved	IX	X	XI	XII
1	133	x		2.3	3.8	3.2	3.0
2	132	x		1.9	2.6	2.1	3.2
3	132	x		4.3	3.4	c	
4	131	x		3.9	4.2	3.5	3.9
5	130	x		1.9	2.6	2.8	2.6
6	130	x		3.1	5.0	c	
7	130	x		2.7	3.8	h 4.4	3.9
8	130	x		3.9	3.0	4.2	3.5
9	130	x		3.5	5.3	4.4	4.4
10	130	x		3.3	3.8	3.2	3.0
11	130	x		3.1	3.4	3.9	3.5
12	128	x		3.5	5.3	3.2	3.5
13	128	x		4.5	5.7	3.5	4.2
14	127	x		1.9	1.9	1.7	2.1
15	127	x		1.9	1.9	1.7	2.1
16	126	x		3.5	4.4	4.4	3.5
17	126	x		1.9	3.4	3.9	2.6
18	126	x		2.7	5.0	c	
19	125	x		2.7	4.8	4.6	4.6
20	125	x		3.1	5.3	4.6	i 3.5
21	125	x		4.7	5.0	4.4	1.7
22	125	x		3.1	5.0	4.4	3.9
23	124	x		3.1	3.4	a	
24	123	x		3.1	3.8	h 3.2	3.2
25	123	x		2.3	4.2	4.4	4.6
26	123	x		2.7	5.1	4.2	3.9
27	123	x		2.7	4.6	3.9	4.8
28	123	x		2.7	4.6	4.4	3.9
29	123	x		2.3	4.6	c	
30	123	x		1.9	3.4	2.6	3.0

Table 2. (cont.)

Language Curriculum--Boys							
Pupil	Intelligence Quotient	Curriculum Choice		Average Sigma Scores			
		Approved	Not Approved	IX	X	XI	XII
31	122	x		2.3	5.7	3.5	5.0
32	122	x		4.7	4.2	a	
33	121	x		3.9	5.3	5.3	5.7
34	121	x		3.5	3.8	3.5	3.5
35	121	x		4.7	5.7	5.3	4.8
36	121	x		3.5	4.6	3.5	3.5
37	120		x	4.7	6.1	6.2	c
38	120	x		4.7	4.2	c	
39	120	x		3.9	3.4	3.0	g 3.9
40	120	x		2.7	4.6	c	
41	120	x		3.5	4.2	c	
42	120	x		1.9	1.9	2.1	1.9
43	120	x		2.3	3.2	2.8	c
44	119	x		1.9	4.0	4.4	3.0
45	119	x		2.3	4.6	4.4	3.5
46	119	x		2.7	3.8	3.0	3.5
47	118	x		1.9	2.6	2.5	2.6
48	118	x		1.9	3.0	2.6	3.5
49	118		x	4.7	5.7	6.6	c
50	117	x		3.9	5.3	5.7	c
51	117	x		3.5	5.7	5.7	c
52	117	x		3.1	5.3	c	
53	117	x		4.3	5.0	4.4	4.2
54	116	x		3.9	5.1	4.8	5.3
55	116	x		3.5	4.6	4.8	4.2
56	116	x		4.7	4.8	3.5	3.5
57	116	x		2.3	4.6	g 4.6	4.6
58	116	x		3.5	3.4	3.5	c
59	115	x		1.9	3.8	h 3.5	3.9
60	115	x		2.7	3.8	3.9	3.9
61	115	x		2.3	3.8	3.0	3.5
62	114	x		3.9	3.8	2.6	2.5
63	114	x		2.7	3.4	3.5	3.0
64	114	x		2.7	5.3	3.0	3.0
65	113	x		2.7	5.3	3.9	3.5

Table 2. (cont.)

Language Curriculum--Boys							
Pupil	Intelligence Quotient	Curriculum Choice		Average Sigma Scores			
		Approved	Not Approved	IX	X	XI	XII
66	113	x		3.1	5.0	4.4	4.8
67	113	x		3.1	5.3	6.6	g 4.8 *
68	112	x		3.9	4.8	g 4.6	4.6
69	112	x		4.7	5.1	c	
70	112	x		3.9	6.1	4.2	h 5.3
71	112	x		3.9	5.0	c	
72	112	x		4.3	5.7	k 3.5	2.5
73	112		x	4.3	5.7	c	
74	112	x		2.3	3.0	2.1	2.5
75	111	x		4.7	5.0	5.3	3.9
76	110	x		3.3	5.3	5.0	5.3
77	110	x		3.5	5.0	4.8	3.9
78	109	x		3.9	4.6	4.6	4.4
79	109	x		3.1	5.3	4.8	4.8
80	108	x		4.3	5.3	c	
81	108	x		2.7	5.0	c	
82	107	x		3.5	5.7	4.8	3.9
83	106	x		4.7	i 5.7	5.0	4.6
84	105		x	4.7	5.7	5.7	c
85	105		x	5.0	5.3	6.6	7.1 *
86	104	x		3.9	5.7	h 5.8	6.2 *
87	104	x		3.1	4.2	4.4	3.9
88	102	x		4.3	4.6	5.0	3.5
89	98		x	4.7	5.0	5.0	g 6.2 *
90	96	x		4.3	6.1	5.0	5.3 *

Key

a. Left school--moved from city
b. " " --went to work
c. " " --entered private school
d. " " --entered Trade School
e. " " --ill health
f. Changed to Language Curriculum
g. " " Certificate "
h. Changed to Mathematics Curriculum
i. " " Academic "
j. " " Academic V "
k. " " Business "
l. " " Office Training "
m. " " Cooperative H. S. and Trade
o. Joined armed service
* Spent 4 years in high school

Table 2. (cont.)

Language Curriculum--Girls							
Pupil	Intelligence Quotient	Curriculum Choice		Average Sigma Scores			
		Approved	Not Approved	IX	X	XI	XII
91	137	x		2.3	c	3.9	3.0
92	137	x		3.9	3.8	4.8	4.4
93	133	x		1.9	3.0	3.5	3.0
94	132	x		3.9	5.0	4.4	3.5
95	132	x		1.9	2.6	2.5	3.2
96	131	x		2.3	3.4	3.5	3.0
97	130	x		3.1	3.8	4.2	3.2
98	130	x		1.9	3.8	3.5	3.2
99	130	x		1.9	2.6	3.5	2.6
100	129	x		2.3	2.6	2.8	2.8
101	129	x		2.7	3.4	3.2	2.6
102	129	x		3.9	5.0	5.3	c
103	128	x		3.5	5.3	a	
104	127	x		1.9	4.2	g 4.4	3.2
105	127	x		3.5	5.3	5.7	5.0
106	127	x		3.5	4.2	c	
107	127	x		2.7	4.6	3.2	3.9
108	127	x		1.9	3.4	3.5	3.5
109	126	x		1.9	2.3	3.2	3.5
110	126	x		4.7	4.6	g 5.3	5.0
111	126	x		3.9	5.0	4.8	4.4
112	125	x		1.9	2.5	2.5	h 2.1
113	125	x		3.5	3.4	2.8	3.2
114	125	x		2.5	2.3	2.5	1.7
115	125	x		1.9	3.4	c	
116	125	x		1.9	2.3	2.5	2.6
117	125	x		4.3	5.3	3.9	c
118	124	x		3.9	3.8	4.6	c
119	124	x		3.9	5.3	4.4	4.2
120	124	x		2.3	4.2	3.2	3.9
121	123	x		2.7	3.0	g 3.9	4.6
122	123	x		2.3	3.0	a	
123	123	x		3.1	4.6	g 4.8	2.5
124	122	x		3.1	2.6	2.5	3.5
125	122	x		1.9	3.2	a	

Table 2. (cont.)

Language Curriculum--Girls							
Pupil	Intelligence Quotient	Curriculum Choice		Average Sigma Scores			
		Approved	Not Approved	IX	X	XI	XII
126	122	x		1.9	4.2	4.4	3.5
127	122	x		3.5	3.8	3.5	c
128	121	x		1.9	3.0	3.2	2.5
129	121	x		1.9	3.8	3.9	4.2
130	121	x		1.9	2.8	1.7	1.7
131	121	x		3.5	4.6	4.8	4.4
132	121	x		2.3	4.6	3.5	3.9
133	120	x		1.9	2.6	2.6	2.5
134	120	x		3.5	4.2	3.5	4.4
135	120	x		2.3	3.8	2.6	4.4
136	120	x		3.1	4.2	4.4	3.9
137	119	x		2.3	4.6	2.8	a
138	118	x		3.5	5.0	g 5.0	5.0
139	118	x		4.5	4.6	a	
140	118	x		1.9	2.3	1.7	2.1
141	118	x		3.1	5.3	3.0	4.8
142	118	x		3.5	5.3	c	
143	118	x		3.1	5.3	3.0	3.0
144	118	x		3.9	5.0	3.9	2.6
145	117		x	4.3	5.3	c	
146	117	x		2.7	4.2	3.5	4.2
147	117	x		3.5	4.6	g 4.8	2.8
148	117	x		3.9	5.3	5.3	4.4
149	117	x		2.3	4.6	4.8	3.5
150	117	x		3.9	4.4	3.9	4.6
151	116	x		3.5	3.8	4.8	3.9
152	116	x		3.9	6.1	4.6	5.0
153	116	x		2.7	3.4	3.5	c
154	116	x		2.3	4.2	3.5	5.7
155	116	x		2.3	3.8	4.6	3.2
156	115	x		2.7	5.0	5.3	g 4.4
157	115	x		2.7	3.0	3.9	3.5
158	115	x		1.9	2.6	2.6	2.6
159	115	x		2.3	2.6	2.6	a
160	115	x		3.9	5.3	4.8	4.4

Table 2. (cont.)

Language Curriculum--Girls

Pupil	Intelligence Quotient	Curriculum Choice		Average Sigma Scores			
		Approved	Not Approved	IX	X	XI	XII
161	114	x		3.5	5.3	5.7	4.2
162	114	x		3.1	4.2	3.5	4.8
163	113	x		4.7	5.3	4.8	4.4
164	113	x		2.3	4.6	c	4.6
165	113	x		3.1	4.2	4.4	3.9
166	112	x		3.1	5.0	4.4	3.0
167	112	x		3.1	3.8	c	
168	111	x		1.9	3.4	4.8	5.3
169	110	x		2.3	3.0	3.5	3.5
170	110	x		3.1	i 3.8	e	2.6
171	110	x		3.1	4.2	a	
172	110	x		4.7	5.3	5.3	3.9
173	110	x		2.3	4.6	5.3	a
174	110	x		3.9	5.3	a	
175	109	x		3.1	4.6	4.4	3.5
176	108		x	4.7	5.0	5.3	5.3
177	107	x		3.9	5.0	i 3.2	2.8
178	107	x		3.9	5.3	5.3	3.5
179	105	x		3.5	5.0	3.9	3.9
180	105	x		3.9	6.1	c	
181	104	x		3.5	5.7	5.7	3.9
182	102		x	4.7	5.7	5.0	a
183	99		x	3.9	5.7	i 3.9	4.2
184	97	x		4.7	6.5	3.9	5.3 *
185	96	x		5.0	4.6	4.8	5.0

Key

a. Left school--moved from city
b. " " --went to work
c. " " --entered private school
d. " " --entered Trade School
e. " " --ill health
f. Changed to Language Curriculum
g. " " Certificate "
h. Changed to Mathematics Curriculum
i. " " Academic "
j. " " Academic V "
k. " " Business "
l. " " Office Training "
m. " " Cooperative H. S. and Trade
o. Joined armed service
* Spent 4 years in high school

Table 2. (cont.)

Certificate Curriculum--Boys							
Pupil	Intelligence Quotient	Curriculum Choice		Average Sigma Scores			
		Approved	Not Approved	IX	X	XI	XII
186	140	x		3.1	4.6	3.0	3.0
187	129	x		4.3	5.7	4.4	5.3
188	129	x		3.9	5.0	c	
189	128	x		3.9	5.0	c	
190	127	x		4.3	6.5	i 5.7	4.2
191	127	x		1.9	3.8	3.5	3.2
192	127	x		3.9	5.0	5.7	c
193	126	x		3.3	4.2	4.8	3.9
194	126	x		3.1	5.7	4.4	3.5
195	126	x		4.3	5.3	5.3	5.0
196	126	x		4.7	5.3	5.3	5.3
197	125	x		3.9	4.2	h 3.9	4.2
198	124	x		3.9	4.6	4.4	3.5
199	123		x	6.0	5.7	5.3	c
200	123	x		3.1	5.7	4.4	c
201	122	x		2.7	5.7	5.0	c
202	122	x		3.1	4.8	4.4	4.2
203	122	x		3.1	3.8	4.4	3.5
204	122	x		3.5	4.6	3.9	3.2
205	122	x		3.1	4.2	a	
206	121	x		4.3	5.0	4.8	4.2
207	121	x		3.9	5.3	c	
208	120		x	5.4	5.3	5.7	5.7
209	120	x		3.5	5.0	a	
210	120	x		3.1	4.2	5.3	5.3
211	120	x		6.2	5.0	6.4	c
212	120	x		4.3	4.8	5.0	4.8
213	119	x		4.7	6.9	c	
214	119	x		4.7	5.1	5.7	5.3
215	118	x		3.5	4.6	5.7	4.8
216	118		x	4.7	5.7	5.3	6.2 *
217	118	x		3.9	5.0	3.9	4.8
218	118	x		3.5	4.2	4.4	3.0
219	118	x		3.9	4.6	5.3	4.8
220	118	x		3.9	5.7	5.0	5.3

Table 2. (cont.)

Certificate Curriculum--Boys							
Pupil	Intelligence Quotient	Curriculum Choice		Average Sigma Scores			
		Approved	Not Approved	IX	X	XI	XII
221	117	x		5.8	5.7	5.7	a
222	117	x		2.3	2.3	2.8	2.8
223	117		x	4.7	6.1	5.7	7.3 *
224	117	x		3.9	2.3	k 3.5	4.2
225	117	x		3.9	4.6	5.3	4.8
226	117		x	5.0	4.2	i 3.9	4.2
227	117	x		4.7	3.4	3.9	4.8
228	116	x		4.7	5.0	5.0	5.3
229	116	x		3.9	4.6	4.4	4.6
230	116	x		3.1	5.0	4.8	3.9
231	116	x		4.3	4.6	5.3	4.8
232	116		x	5.0	6.2	c	
233	115		x	3.9	6.9	i 3.5	3.5
234	115	x		5.0	3.8	i 5.7	4.6
235	115	x		4.5	5.0	5.7	5.3
236	115		x	5.4	6.1	5.7	c
237	115	x		4.9	3.4	4.8	4.8
238	115	x		5.0	6.1	5.3	5.3 *
239	115	x		1.9	3.0	3.9	4.4
240	115	x		4.3	4.2	5.3	5.3
241	114	x		5.8	6.1	4.4	4.6 *
242	114		x	4.7	5.0	5.3	4.8 *
243	114	x		4.3	5.3	4.8	c
244	114		x	4.3	5.7	4.8	8.0
245	113	x		4.3	5.0	6.0	c
246	113	x		5.0	5.3	5.7	a
247	113	x		4.3	5.3	i 5.3	4.4
248	113	x		4.3	4.8	c	
249	112		x	5.0	i 5.1	5.3	5.0 *
250	112		x	5.0	6.5	a	
251	112		x	5.2	3.4	c	
252	112	x		5.0	5.3	5.3	4.8
253	111		x	5.4	5.7	a	
254	110		x	5.8	5.0	a	
255	110	x		5.0	5.3	4.8	5.7

Table 2. (cont.)

Certificate Curriculum--Boys

Pupil	Intelligence Quotient	Curriculum Choice		Average Sigma Scores					
		Approved	Not Approved	IX	X	XI		XII	
256	110	x		3.3	5.3		4.6		5.7
257	110	x		5.0	5.0		5.3		5.3
258	110	x		3.9	5.0		4.8		4.4
259	109	x		3.5	5.0		5.0	a	
260	109		x	5.8	6.1	c			
261	109		x	4.9	5.7		6.6	i	3.9 *
262	109		x	4.7	7.1		5.3	c	
263	109		x	6.2	5.7	i	3.9		3.9
264	108	x		4.7	6.6	i	6.2		4.4 *
265	108	x		5.0	4.8		5.7		7.1 *
266	107		x	5.4	6.7		6.2		5.3 *
267	107	x		4.3	4.8		3.9		4.4
268	107	x		3.9	5.3		5.3		4.2
269	106	x		4.3	5.7	a			
270	106	x		4.3	5.7	i	3.5		4.6
271	106	x		5.0	5.1		5.7		3.9 *
272	106	x		3.9	5.3		4.8		5.3
273	105		x	4.3	7.3		6.4		4.4 *
274	105	x		5.0	6.7	c			
275	105	x		4.7	5.1		3.2		4.2
276	105	x		5.2	5.7	i	5.8		5.3
277	104	x		4.7	5.3		5.3	c	
278	103	x		4.3	5.0		5.7		5.3
279	103		x	5.8	5.7		5.3	i	4.8
280	103	x		4.3	6.1		5.3		5.7
281	101	x		3.9	5.7		5.3	i	5.3 *
282	101		x	5.0	6.1		5.7	c	
283	100	x		3.9	5.0		4.8		3.5
284	100		x	3.3	6.1	i	5.7		5.3 *
285	99	x		3.9	6.1		4.4		5.3
286	99		x	4.9	6.1		5.3	c	
287	99	x		1.9	3.0		2.1		3.0
288	99	x		4.3	5.7	a			
289	99		x	5.8	5.1	i	4.8		3.9
290	98	x		5.0	4.8		5.0		4.8

Table 2. (cont.)

Certificate Curriculum--Boys

Pupil	Intelligence Quotient	Curriculum Choice		Average Sigma Scores			
		Approved	Not Approved	IX	X	XI	XII
291	97		x	5.4	6.1	6.4	5.3 *
292	97		x	3.3	6.1	c	
293	96	x		3.9	4.2	5.3	3.9
294	96	x		4.3	4.2	c	3.5
295	95	x		3.9	5.1	4.4	3.5
296	94	x		3.9	5.0	5.3	4.4
297	93	x		3.9	5.0	k 5.3	5.3

Key

a. Left school--moved from city
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c. " " --entered private school
d. " " --entered Trade School
e. " " --ill health
f. Changed to Language Curriculum
" " Certificate "
h. Changed to Mathematics Curriculum
i. " " Academic "
j. " " Academic V "
k. " " Business "
l. " " Office Training "
m. " " Cooperative H. S. and Trade
o. Joined armed service
* Spent 4 years in high school

Certificate Curriculum--Girls

Pupil	Intelligence Quotient	Curriculum Choice		Average Sigma Scores			
		Approved	Not Approved	IX	X	XI	XII
298	133	x		3.9	5.0	4.8	3.7
299	132	x		1.9	4.6	3.7	3.5
300	128	x		2.8	4.2	4.4	3.5
301	127	x		4.3	4.6	4.8	4.6
302	127	x		3.9	3.4	2.8	3.5
303	126	x		1.9	3.8	2.6	3.0
304	126	x		4.7	5.0	4.2	3.9
305	125	x		1.9	3.0	3.0	3.9
306	125	x		2.7	5.0	3.5	3.9
307	125	x		2.7	4.2	3.5	3.9

Table 2. (cont.)

Certificate Curriculum--Girls							
Pupil	Intelligence Quotient	Curriculum Choice		Average Sigma Scores			
		Approved	Not Approved	IX	X	XI	XII
308	124	x		3.9	4.6	5.7	4.6
309	124	x		3.5	3.8	5.3	i 2.1
310	124	x		1.9	3.8	3.5	3.5
311	124	x		3.1	4.2	i 2.5	2.5
312	124	x		3.1	3.4	3.9	3.5
313	122	x		2.3	4.2	3.5	4.4
314	122	x		1.9	2.3	3.0	2.6
315	121	x		4.3	4.6	4.6	4.4
316	121	x		3.9	3.8	4.2	2.8
317	121	x		2.7	3.8	3.5	3.5
318	121	x		4.7	4.2	3.9	5.0
319	120	x		4.3	4.6	4.6	5.3
320	120	x		3.5	4.2	3.9	c
321	120	x		4.1	5.7	i 3.5	4.4
322	119	x		3.1	4.2	a	
323	118	x		4.7	4.6	4.8	3.9
324	118	x		1.9	3.4	3.5	3.5
325	118	x		5.0	4.8	4.6	5.8
326	118	x		2.7	4.2	3.5	2.5
327	117	x		5.8	6.9	5.7	c
328	117	x		3.9	6.5	5.3	5.8 *
329	117	x		4.3	3.8	3.9	3.5
330	117	x		2.3	4.2	4.4	3.9
331	117	x		5.4	5.3	5.8	5.0
332	116	x		4.3	4.8	4.4	5.3
333	116	x		5.0	5.7	3.5	3.5
334	115	x		5.4	3.8	3.9	5.3
335	115	x		4.7	5.3	4.8	5.3
336	114	x		3.1	5.3	5.3	a
337	114	x		3.1	4.8	3.9	c
338	114	x		4.3	4.2	a	
339	113	x		4.7	4.2	3.9	3.5
340	113		x	5.4	7.1	6.0	i 4.6
341	113	x		4.3	5.7	a	
342	113	x		3.9	5.0	4.8	3.9

Table 2. (cont.)

Certificate Curriculum--Girls							
Pupil	Intelligence Quotient	Curriculum Choice		Average Sigma Scores			
		Approved	Not Approved	IX	X	XI	XII
343	113	x		3.9	5.0	5.7	e
344	112	x		4.7	4.6	i 3.9	3.5
345	111	x		4.7	5.1	i 5.3	3.2
346	111		x	6.2	6.1	c	
347	111		x	5.0	5.7	6.2	i 4.6
348	111	x		3.5	4.8	4.8	3.5
349	110		x	4.9	6.5	5.3	a
350	110	x		5.4	5.0	2.1	3.9
351	110	x		3.9	5.7	5.3	5.3
352	109	x		4.3	4.6	2.6	3.5
353	109		x	4.9	5.3	i 3.2	3.7
354	109	x		4.7	6.1	c	
355	108	x		4.3	5.0	i 3.5	3.5
356	108		x	5.0	4.6	i 3.5	3.5
357	108	x		3.9	5.3	a	
358	108	x		3.5	5.3	5.3	3.7
359	108	x		3.5	4.6	4.8	3.5
360	107	x		4.9	5.0	4.8	4.4
361	107		x	4.3	5.7	6.2	i 5.0
362	107		x	5.8	5.3	5.3	5.3
363	107		x	4.3	7.3	c	
364	106	x		4.7	5.3	3.5	4.4
365	106		x	4.9	5.1	6.6	i 4.4 *
366	105	x		3.9	5.7	5.0	i 3.9
367	105	x		5.4	6.5	4.4	i 3.9 *
368	104	x		4.3	4.6	2.6	4.4
369	104		x	5.2	7.3	c	
370	103	x		4.7	5.7	4.8	4.6
371	103		x	5.0	7.3	6.4	4.4 *
372	103	x		2.7	4.6	4.4	3.9
373	103		x	5.4	5.7	4.6	c
374	102	x		5.0	5.3	3.5	5.3
375	102	x		5.0	5.3	6.2	4.6 *
376	102	x		3.5	5.0	5.3	3.0
377	102	x		3.1	4.2	4.8	3.9

Table 2. (cont.)

Certificate Curriculum--Girls							
Pupil	Intelligence Quotient	Curriculum Choice		Average Sigma Scores			
		Approved	Not Approved	IX	X	XI	XII
378	101	x		5.4	5.3	4.8	3.5
379	99	x		3.5	3.4	c	
380	99	x		4.3	4.6	5.3	5.3
381	98		x	4.7	5.7	i 4.2	3.5
382	93	x		4.7	5.7	c	
383	92	x		4.7	5.3	4.8	3.9

Key

a. Left school--moved from city
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d. " " --entered Trade School
e. " " --ill health
f. Changed to Language Curriculum
" " Certificate "
h. Changed to Mathematics Curriculum
i. " " Academic "
j. " " Academic V "
k. " " Business "
l. " " Office Training "
m. " " Cooperative H. S. and Trade
o. Joined armed service
* Spent 4 years in high school

Mathematics Curriculum--Boys							
Pupil	Intelligence Quotient	Curriculum Choice		Average Sigma Scores			
		Approved	Not Approved	IX	X	XI	XII
384	144	x		1.9	2.6	1.7	2.6
385	130	x		3.5	4.6	6.6	c
386	126	x		2.3	3.4	3.2	3.5
387	124	x		1.9	2.6	3.2	2.8
388	124	x		2.3	4.2	3.9	3.9
389	123	x		4.3	5.0	g 3.9	4.6
390	123	x		3.1	4.6	4.6	4.8
391	123	x		3.9	5.1	5.3	5.3
392	123	x		3.5	4.2	5.3	6.6
393	122		x	4.3	5.7	5.3	4.6
394	122	x		3.5	6.9	c	
395	121	x		3.1	4.2	4.2	4.6
396	121	x		3.9	4.6	5.3	3.9
397	121	x		3.5	5.3	5.3	f 3.5

Table 2. (cont.)

Mathematics Curriculum--Boys											
Pupil	Intelligence Quotient	Curriculum Choice		Average Sigma Scores							
		Approved	Not Approved	IX		X		XI		XII	
398	120	x		5.4		5.7		6.2		6.2	*
399	120	x		3.5		5.0		3.5		4.8	
400	118	x		2.9		4.2		5.3		3.9	
401	117	x		3.1		3.8		4.6		3.9	
402	117	x		3.9		5.0	g	6.4		4.8	
403	117	x		3.9		4.6		4.6		4.2	
404	117	x		3.1		5.7	g	5.3		3.9	
405	117	x		1.9		2.6		2.6		2.6	
406	116	x		3.5		5.0		5.3	g	3.2	
407	116	x		3.9		4.2		3.9		3.0	
408	116	x		2.3		4.6	c				
409	114	x		3.9		3.4	f	3.9		5.3	
410	114	x		3.5		5.3		3.9	c		
411	112	x		4.3		4.6	a				
412	110	x		3.9		5.3		4.4		4.8	
413	109	x		2.7		3.8		3.9		3.9	
414	108	x		3.1		4.6		4.6		5.8	
415	108	x		3.9		5.7	i	3.2		2.8	
416	108		x	4.3		6.1	c				
417	103		x	5.4		6.9	a				
418	100		x	6.6		6.5	g	5.5		5.3	*
419	100	x		3.5		5.7	c				
420	98		x	3.9		6.5	i	7.1		6.2	*
421	92		x	4.7		6.9	c				

Key

a. Left school--moved from city
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d. " " --entered Trade School
e. " " --ill health
f. Changed to Language Curriculum
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h. Changed to Mathematics Curriculum
i. " " Academic "
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k. " " Business "
l. " " Office Training "
m. " " Cooperative H. S. and Trade
o. Joined armed service
* Spent 4 years in high school

Table 2. (cont.)

Academic I, II, III, IV Curricula--Boys							
Pupil	Intelligence Quotient	Curriculum Choice		Average Sigma Scores			
		Approved	Not Approved	IX	X	XI	XII
422	123	x		4.3	5.7	5.7	5.3
423	118	x		3.5	4.6	5.1	4.8
424	117	x		4.7	4.6	6.4	4.6
425	117	x		4.7	3.8	4.6	4.2
426	116	x		1.9	1.9	1.9	2.6
427	115	x		4.3	5.5	5.1	4.6
428	115	x		3.1	4.2	3.0	3.9
429	114	x		4.7	5.3	5.3	4.8
430	114		x	5.2	5.0	5.7	6.0 *
431	114	x		4.3	5.1	4.6	6.0 *
432	113	x		6.2	5.0	5.7	3.8
433	112	x		3.9	4.2	c	
434	112	x		3.5	5.7	3.9	3.9
435	111	x		5.8	6.1	a	
436	111	x		5.8	5.7	5.3	5.3
437	110	x		3.1	4.2	5.3	5.7
438	110	x		4.7	6.1	4.6	6.7 *
439	109	x		5.0	5.3	a	
440	109	x		4.7	4.2	5.3	5.3
441	109		x	6.2	5.0	5.3	a
442	109	x		5.2	6.9	a	
443	109	x		5.2	7.6	5.3	5.7 *
444	108	x		5.4	5.3	5.7	5.7
445	108	x		5.4	4.2	6.1	a
446	108	x		5.8	5.3	5.7	5.3
447	108		x	4.7	6.1	6.6	5.3 *
448	108	x		5.0	6.1	5.0	5.3
449	107	x		4.3	5.1	6.2	5.0
450	106	x		3.5	5.3	6.1	5.7 *
451	106	x		3.9	5.7	5.0	5.0
452	106	x		3.1	4.6	k 5.3	5.3
453	105	x		4.5	6.5	5.7	4.6 *
454	105	x		4.3	5.1	c	
455	105	x		3.3	4.2	4.6	5.7
456	104	x		6.2	6.1	b	

Table 2. (cont.)

Academic I, II, III, IV Curricula--Boys							
Pupil	Intelligence Quotient	Curriculum Choice		Average Sigma Scores			
		Approved	Not Approved	IX	X	XI	XII
457	103	x		4.3	5.0	5.7	4.8
458	103	x		3.9	5.7	5.7	4.8
459	102	x		4.3	6.5	6.3	5.1 *
460	102	x		3.9	4.2	c	6.0 *
461	102	x		3.9	5.7	4.2	5.3
462	101	x		3.5	4.6	k 4.6	5.3
463	101	x		3.9	5.7	5.3	3.8
464	101		x	3.9	5.7	b	
465	101		x	4.7	6.1	5.3	5.7 *
466	101	x		5.4	5.0	5.3	4.8
467	100	x		4.7	5.7	4.2	4.8
468	100		x	5.8	6.5	4.2	o
469	99	x		5.0	5.3	5.7	5.7
470	99		x	5.8	6.1	5.7	5.7 *
471	99	x		4.7	6.1	6.1	5.0 *
472	99	x		4.3	5.7	6.2	a
473	98	x		4.3	5.3	5.7	5.3
474	98	x		4.9	5.1	4.8	4.4
475	98	x		5.2	5.7	6.7	5.3 *
476	97		x	6.2	7.1	b	
477	97	x		5.2	6.1	4.8	a
478	96	x		5.8	6.4	g 6.1	k 5.3 *
479	96	x		4.3	4.2	4.6	5.0
480	96	x		3.5	5.3	5.3	5.1
481	96	x		2.7	5.0	3.0	4.4
482	95	x		3.9	5.7	5.3	5.7
483	95	x		4.7	4.6	4.8	5.3
484	94	x		4.7	5.1	4.6	5.0
485	94		x	4.7	5.0	6.1	5.0
486	94	x		4.9	5.1	5.3	4.8
487	93	x		3.5	4.6	4.8	4.6
488	93	x		5.4	5.7	g 6.2	i 3.9 *
489	92	x		4.7	5.1	5.3	5.7
490	91	x		3.5	5.3	3.5	c
491	90	x		4.7	6.1	5.7	5.1 *

Table 2. (cont.)

Academic I, II, III, IV Curricula--Boys							
Pupil	Intelligence Quotient	Curriculum Choice		Average Sigma Scores			
		Approved	Not Approved	IX	X	XI	XII
492	89	x		2.7	3.8	4.2	2.6
493	89	x		4.3	5.0	4.8	c
494	89	x		4.7	5.7	5.3	5.0
495	88	x		4.7	5.3	4.6	4.6
496	86	x		5.8	6.9	6.6	o
497	85		x	5.8	4.2	5.7	b
498	84		x	4.3	6.1	j 4.6	5.7

Key

a. Left school--moved from city
b. " " --went to work
c. " " --entered private school
d. " " --entered Trade School
e. " " --ill health
f. Changed to Language Curriculum
g. " " Certificate "
h. Changed to Mathematics Curriculum
i. " " Academic "
j. " " Academic V "
k. " " Business "
l. " " Office Training "
m. " " Cooperative H. S. and Trade
o. Joined armed service
* Spent 4 years in high school

Academic I, II, III, IV Curricula--Girls							
Pupil	Intelligence Quotient	Curriculum Choice		Average Sigma Scores			
		Approved	Not Approved	IX	X	XI	XII
499	131	x		3.9	4.6	5.3	4.8
500	130	x		4.3	3.8	3.0	3.5
501	124	x		3.9	3.8	3.5	3.9
502	121	x		3.9	3.2	g 3.5	3.5
503	120	x		4.3	5.7	5.3	4.8
504	120	x		3.1	4.2	3.2	4.2
505	120	x		4.7	5.0	c	
506	119	x		3.9	4.2	5.0	3.9
507	117	x		3.9	4.2	a	
508	115	x		2.7	5.3	3.8	3.2

Table 2. (cont.)

Academic I, II, III, IV Curricula--Girls							
Pupil	Intelligence Quotient	Curriculum Choice		Average Sigma Scores			
		Approved	Not Approved	IX	X	XI	XII
509	115	x		3.5	3.8	3.0	3.2
510	115	x		4.3	4.2	3.5	a
511	114	x		4.3	5.1	a	
512	114		x	4.7	6.9	1 5.7	4.8
513	114	x		5.0	4.8	4.4	4.4
514	114	x		6.2	5.3	6.2	4.8 *
515	114	x		4.3	3.8	3.9	3.9
516	113	x		4.7	4.8	3.5	4.6
517	113	x		4.5	4.2	4.6	5.3
518	112	x		2.7	5.3	1 5.0	4.6
519	112	x		4.7	2.8	3.5	3.0
520	110	x		5.0	5.0	3.8	5.7
521	110	x		4.3	4.2	3.9	2.5
522	110	x		4.3	5.3	4.4	4.6
523	110	x		5.8	6.1	6.0	4.4 *
524	109		x	4.3	5.3	4.2	5.1
525	109	x		5.4	5.3	5.0	5.3
526	109	x		5.2	4.2	4.4	4.4
527	109	x		3.9	4.2	5.0	4.8
528	108	x		4.3	3.8	3.8	3.5
529	108	x		5.8	6.1	4.8	4.6 *
530	108	x		3.9	5.0	4.8	3.9
531	108	x		2.7	3.0	2.6	3.9
532	108	x		5.8	6.9	6.4	5.3 *
533	108	x		4.9	4.8	5.3	4.4
534	108	x		3.9	4.8	c	
535	107	x		4.3	6.1	4.2	6.5 *
536	107	x		3.9	4.2	5.3	5.3
537	107	x		4.7	5.1	6.2	3.9 *
538	107	x		5.2	5.1	5.3	5.3
539	107	x		5.2	5.3	5.7	4.6
540	106	x		3.5	5.3	6.1	a
541	106	x		3.9	3.8	3.5	3.0
542	105	x		4.7	5.0	5.3	4.8
543	105	x		4.3	5.7	5.3	a

Table 2. (cont.)

Academic I, II, III, IV Curricula--Girls							
Pupil	Intelligence Quotient	Curriculum Choice		Average Sigma Scores			
		Approved	Not Approved	IX	X	XI	XII
544	105		x	4.3	6.9	5.3	c
545	105	x		4.3	4.2	4.8	4.2
546	105	x		6.2	4.6	3.5	4.6
547	105	x		5.2	5.7	c	
548	105		x	4.3	6.1	b	
549	105	x		5.2	6.1	a	
550	104	x		5.4	4.2	5.1	5.3
551	104	x		3.9	5.3	5.1	5.3
552	104	x		4.7	5.0	5.3	c
553	104	x		4.7	4.6	4.2	3.5
554	104	x		4.7	5.3	c	
555	104	x		4.3	5.0	5.0	4.6
556	104	x		4.7	5.3	4.4	4.2
557	103	x		5.8	5.3	5.3	5.7
558	103	x		5.4	5.3	a	
559	103	x		4.3	3.0	3.8	4.2
560	103	x		3.9	4.6	3.9	3.0
561	103	x		4.9	5.0	4.2	3.9
562	102	x		4.7	6.5	5.7	5.0
563	102	x		5.4	3.0	4.6	3.4
564	102	x		4.9	4.6	3.9	3.2
565	102	x		4.3	5.7	4.4	4.2
566	101	x		3.9	4.8	6.7	5.3 *
567	101	x		4.9	4.2	3.5	3.9
568	101	x		3.9	5.0	4.4	4.4
569	101	x		5.0	4.8	3.9	4.8
570	101		x	5.8	5.7	a	
571	100		x	4.7	5.7	5.7	4.6
572	99		x	5.0	7.1	6.1	4.8 *
573	99		x	5.0	6.5	5.7	c
574	99		x	5.0	5.7	c	
575	98	x		3.9	5.7	5.7	5.0
576	98	x		4.7	4.6	4.2	4.8
577	98	x		3.9	4.6	4.6	2.8
578	98		x	5.8	7.1	j 5.3	b

Table 2. (cont.)

Academic I, II, III, IV Curricula--Girls							
Pupil	Intelligence Quotient	Curriculum Choice		Average Sigma Scores			
		Approved	Not Approved	IX	X	XI	XII
579	98	x		3.1	4.2	b	
580	98	x		4.9	5.0	5.7	4.2
581	97	x		3.5	5.0	4.6	5.3
582	97	x		3.9	5.7	j 4.8	4.8
583	97	x		3.5	5.7	4.8	4.2
584	96	x		3.9	6.1	5.7	4.8 *
585	96		x	5.8	6.5	6.5	l 5.7 *
586	96	x		4.3	5.0	5.3	4.6
587	96	x		4.7	6.5	4.4	4.8 *
588	95	x		4.3	5.0	5.0	5.3
589	95	x		4.7	3.0	3.5	3.9
590	95	x		4.3	5.1	5.3	3.9
591	95		x	5.8	5.1	7.1	5.3
592	94	x		5.4	5.0	5.3	5.0
593	93	x		3.5	4.4	a	
594	93	x		5.4	5.7	5.3	5.0
595	93	x		6.2	5.7	5.0	4.6
596	92	x		4.3	5.0	3.5	3.5
597	91	x		4.3	3.8	4.8	3.9
598	91		x	5.0	5.7	5.3	6.4 *
599	90	x		3.9	5.1	3.9	3.5
600	88	x		3.5	4.2	3.4	3.5
601	87	x		4.7	5.3	5.3	c
602	86		x	5.4	6.2	e	
603	85	x		3.9	5.3	4.4	5.3

Key

a. Left school--moved from city
b. " " --went to work
c. " " --entered private school
d. " " --entered Trade School
e. " " --ill health
f. Changed to Language Curriculum
g. " " Certificate "
h. Changed to Mathematics Curriculum
i. " " Academic "
j. " " Academic V "
k. " " Business "
l. " " Office Training "
m. " " Cooperative H. S. and Trade
o. Joined armed service
* Spent 4 years in high school

Table 2. (cont.)

Academic V Curriculum--Boys

Pupil	Intelligence Quotient	Curriculum Choice		Average Sigma Scores			
		Approved	Not Approved	IX	X	XI	XII
604	109	x		4.3	5.7	5.3	5.0
605	109	x		5.0	5.7	b	
606	107	x		4.3	4.8	5.7	m
607	106	x		4.9	4.8	4.2	b
608	105	x		4.3	5.0	5.3	5.7
609	103	x		5.2	4.8	5.0	5.0
610	99	x		3.9	2.8	2.1	4.4
611	97	x		3.5	4.2	4.2	4.6
612	97	x		4.9	3.8	4.2	4.6
613	97	x		4.3	4.6	4.8	m
614	96	x		3.9	6.1	4.2	m
615	94	x		4.3	6.7	b	
616	94	x		5.2	5.7	d	
617	93	x		3.5	5.3	5.0	5.7
618	93	x		3.9	4.2	b	
619	91	x		3.3	4.2	5.0	4.6
620	90	x		5.0	4.2	5.0	5.0
621	90	x		3.1	5.7	5.7	5.0
622	89	x		4.1	4.2	4.4	m
623	88	x		5.2	5.3	5.3	5.3
624	88	x		4.9	5.7	b	
625	86	x		2.9	3.8	3.9	b
626	86	x		4.3	3.8	k 3.9	4.6
627	85	x		5.2	4.6	5.0	5.0
628	84	x		3.5	5.7	6.1	o
629	84	x		5.0	5.1	5.0	m
630	84	x		3.9	5.7	b	
631	83	x		3.9	5.0	6.0	5.3
632	83	x		5.8	6.9	d	
633	81	x		4.3	5.8	b	
634	81	x		4.7	5.7	b	
635	80	x		5.4	5.7	b	
636	80	x		4.9	5.3	5.3	5.0
637	79		x	5.8	6.7	b	
638	79	x		4.3	5.0	b	

Table 2. (cont.)

Academic V Curriculum--Boys							
Pupil	Intelligence Quotient	Curriculum Choice		Average Sigma Scores			
		Approved	Not Approved	IX	X	XI	XII
639	76	x		5.8	6.1	5.7	b
640	75	x		5.0	6.1	5.3	5.3
641	74	x		4.7	5.3	5.7	5.7
642	72	x		4.7	5.7	5.3	m

Key

a. Left school--moved from city
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d. " " --entered Trade School
e. " " --ill health
f. Changed to Language Curriculum
g. " " Certificate "
h. Changed to Mathematics Curriculum
i. " " Academic "
j. " " Academic V "
k. " " Business "
l. " " Office Training "
m. " " Cooperative H. S. and Trade
o. Joined armed service
* Spent 4 years in high school

Academic V Curriculum--Girls							
Pupil	Intelligence Quotient	Curriculum Choice		Average Sigma Scores			
		Approved	Not Approved	IX	X	XI	XII
643	106	x		4.5	6.9	4.1	5.3
644	104	x		4.7	4.6	l 6.1	5.0
645	104	x		4.3	3.4	l 3.9	4.2
646	95	x		4.7	5.3	5.0	5.7
647	92	x		5.4	5.1	4.2	4.6
648	90	x		4.7	5.3	b	
649	90	x		5.0	4.4	5.0	4.2
650	89	x		5.8	5.0	4.6	4.6
651	89	x		5.0	4.6	4.1	4.2
652	88	x		4.7	5.1	4.2	3.9
653	86	x		5.8	5.3	5.0	5.0
654	84	x		4.7	3.8	5.3	4.2
655	84	x		5.4	5.1	b	
656	83	x		5.0	3.8	4.2	5.3
657	83	x		5.8	6.3	5.7	b

Table 2. (cont.)

Academic V Curriculum--Girls

Pupil	Intelligence Quotient	Curriculum Choice		Average Sigma Scores			
		Approved	Not Approved	IX	X	XI	XII
658	82	x		5.8	6.5	5.3	b
659	81	x		4.3	5.0	4.6	b
660	80	x		5.0	5.7	4.4	5.3
661	79	x		5.4	5.3	4.6	5.0
662	79	x		6.2	6.9	4.1	5.3
663	78	x		5.4	5.3	5.3	4.6
664	78	x		5.8	5.3	4.6	3.9
665	78	x		4.3	4.2	a	
666	78	x		5.0	5.7	b	
667	75	x		4.7	3.8	3.9	5.7

Key

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e. " " --ill health
f. Changed to Language Curriculum
g. " " Certificate "
h. Changed to Mathematics Curriculum
i. " " Academic "
j. " " Academic V "
k. " " Business "
l. " " Office Training "
m. " " Cooperative H. S. and Trade
o. Joined armed service
* Spent 4 years in high school

Business Curriculum--Boys

Pupil	Intelligence Quotient	Curriculum Choice		Average Sigma Scores			
		Approved	Not Approved	IX	X	XI	XII
668	127	x		2.1	4.2	3.5	4.6
669	127	x		3.9	4.2	2.5	3.5
670	125	x		1.9	3.8	3.9	5.3
671	124	x		3.5	3.4	5.0	5.3
672	120	x		4.3	4.2	2.8	m
673	119	x		3.1	4.6	3.9	4.8
674	117	x		3.5	3.8	4.2	4.6
675	117	x		3.5	5.3	b	
676	116		x	5.0	6.1	6.4	d
677	116	x		3.1	4.2	3.9	3.9

Table 2. (cont.)

Business Curriculum--Boys							
Pupil	Intelligence Quotient	Curriculum Choice		Average Sigma Scores			
		Approved	Not Approved	IX	X	XI	XII
678	116	x		2.3	2.3	3.5	4.2
679	115	x		1.9	2.3	2.1	2.5
680	114	x		3.9	5.0	5.0	5.0
681	114	x		3.1	3.8	4.8	5.0
682	113	x		3.5	3.4	3.9	4.6
683	113	x		4.3	4.2	3.9	4.6
684	113	x		3.9	5.7	5.0	5.3
685	112	x		4.3	5.0	4.2	2.8
686	112	x		4.3	5.0	5.3	4.6
687	111	x		4.3	6.1	4.2	5.0
688	111	x		4.7	5.0	a	
689	111	x		3.1	6.5	5.3	5.7
690	110	x		5.0	5.0	5.0	5.3
691	110	x		5.4	6.1	5.3	d
692	110	x		3.5	5.3	5.3	5.3
693	110	x		3.9	5.7	4.6	5.3
694	109	x		4.7	5.0	3.5	b
695	108	x		4.3	5.3	4.6	b
696	108	x		4.3	3.8	4.2	4.6
697	107	x		3.9	3.8	3.2	3.7
698	107	x		3.9	5.7	5.3	5.3
699	107	x		2.3	4.2	3.2	3.5
700	106	x		4.3	4.6	4.6	4.4
701	105	x		4.7	5.0	5.0	5.0
702	105	x		4.3	5.7	5.3	4.2
703	104	x		2.3	4.2	3.5	b
704	104	x		3.9	4.6	5.0	5.0
705	104	x		2.7	3.0	3.5	2.8
706	103		x	4.9	7.1	o	
707	103	x		3.5	6.5	5.3	m
708	102	x		4.3	4.6	5.0	4.6
709	101	x		3.9	4.2	3.2	3.9
710	101	x		2.7	3.8	4.2	3.9
711	101	x		3.5	6.1	5.3	b
712	101	x		3.9	5.3	5.0	5.3

Table 2. (cont.)

Business Curriculum--Boys							
Pupil	Intelligence Quotient	Curriculum Choice		Average Sigma Scores			
		Approved	Not Approved	IX	X	XI	XII
713	100	x		4.7	4.2	3.5	3.7
714	99	x		3.9	5.3	5.3	b
715	99	x		4.7	5.3	a	
716	99	x		3.1	6.5	5.3	d
717	99	x		4.7	5.3	3.9	m
718	97		x	3.5	7.6	d	
719	96	x		4.7	6.5	5.7	b
720	96	x		3.9	5.3	5.3	o
721	96	x		3.9	6.1	4.4	d
722	96	x		4.3	5.7	5.7	b
723	95	x		4.3	6.1	b	
724	94	x		4.7	5.7	b	
725	94	x		3.5	5.3	4.6	5.7
726	94	x		3.5	6.1	5.3	m
727	93		x	5.4	6.5	6.0	5.3 *
728	93	x		4.3	5.7	b	
729	92	x		3.5	4.6	5.0	4.4
730	91	x		3.9	5.0	5.0	4.4
731	91	x		3.9	5.3	4.6	5.0
732	91	x		4.7	5.3	5.3	5.0
733	90	x		3.9	5.3	4.6	4.6
734	89	x		4.3	6.5	5.0	b
735	87	x		5.0	5.7	5.7	5.0
736	85	x		3.1	4.2	3.5	3.9
737	84		x	3.3	5.9	5.3	5.3
738	84	x		3.1	5.7	4.6	6.0
739	80		x	3.5	5.7	3.5	4.6
740	79		x	4.7	6.7	j 5.3	b

Key

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i. " " Academic "
j. " " Academic V "
k. " " Business "
l. " " Office Training "
m. " " Cooperative H. S. and Trade
o. Joined armed service
* Spent 4 years in high school

Table 2. (cont.)

Office Training Curriculum--Girls							
Pupil	Intelligence Quotient	Curriculum Choice		Average Sigma Scores			
		Approved	Not Approved	IX	X	XI	XII
741	122	x		2.7	5.3	5.3	5.3
742	121	x		1.9	3.8	3.2	2.8
743	120	x		3.5	3.4	3.2	3.2
744	120	x		1.9	2.3	1.7	1.7
745	119	x		3.1	5.0	3.9	3.5
746	118	x		3.9	5.3	4.6	4.2
747	118	x		1.9	2.6	3.2	3.5
748	115	x		1.9	3.8	3.2	3.7
749	114	x		3.5	3.8	3.2	3.2
750	114	x		3.9	4.2	4.4	4.1
751	114	x		3.5	4.6	3.9	4.1
752	114	x		3.5	5.0	3.9	3.5
753	114	x		3.1	3.4	3.9	4.2
754	112	x		3.9	2.3	1.7	1.7
755	110	x		3.9	4.6	4.2	3.5
756	110	x		3.9	5.3	5.3	3.5
757	110	x		1.9	2.6	2.8	1.9
758	110	x		3.9	5.0	6.4	5.3
759	109	x		3.1	3.0	4.1	2.3
760	109	x		5.0	5.7	4.4	5.5
761	109	x		3.9	5.0	5.3	5.3
762	109	x		3.9	2.6	3.2	3.7
763	108	x		3.5	3.8	4.6	4.4
764	108	x		3.5	4.2	a	
765	107	x		4.3	5.0	4.4	5.3
766	107	x		3.9	4.2	b	
767	106	x		2.7	3.8	4.6	5.3
768	106	x		4.7	5.7	6.4	b
769	105	x		3.5	4.6	4.1	3.5
770	105	x		3.1	5.0	4.4	3.7
771	105	x		4.7	5.3	5.3	b
772	105	x		3.9	5.7	5.3	5.7
773	105	x		3.9	4.2	5.0	4.6
774	104	x		4.3	5.3	5.3	b
775	104	x		5.0	4.6	5.3	4.2

Table 2. (cont.)

Office Training Curriculum--Girls							
Pupil	Intelligence Quotient	Curriculum Choice		Average Sigma Scores			
		Approved	Not Approved	IX	X	XI	XII
776	104		x	4.7	4.8	i 3.9	3.9
777	104	x		4.3	4.2	a	
778	103	x		3.5	3.4	4.4	5.0
779	103	x		3.5	6.1	5.3	i 5.3
780	103	x		3.9	5.7	3.9	4.4
781	103	x		3.5	5.1	3.5	3.9
782	103	x		3.9	6.7	3.9	4.2
783	102	x		3.1	3.8	4.6	4.1
784	102	x		2.7	3.8	3.7	3.7
785	102	x		4.3	5.7	5.3	5.0
786	102		x	4.3	5.7	i 5.7	5.3
787	101	x		4.3	4.2	4.1	3.5
788	101	x		5.2	4.2	4.2	4.4
789	101	x		3.5	5.0	4.2	4.6
790	100	x		3.9	4.2	5.0	4.4
791	100	x		4.3	3.8	4.6	3.7
792	100	x		4.7	6.1	5.7	5.3
793	99	x		3.5	5.0	4.4	4.1
794	99	x		4.3	4.4	4.1	4.6
795	99	x		4.7	4.6	5.0	4.4
796	99	x		4.7	4.2	5.0	3.5
797	99	x		4.3	3.4	5.0	4.6
798	98	x		3.1	2.3	4.2	2.8
799	98	x		3.5	5.1	5.3	5.3
800	98	x		3.5	5.7	4.4	b
801	97	x		2.7	4.2	5.0	5.0
802	97	x		3.5	4.2	4.1	5.3
803	96	x		3.5	4.2	4.6	5.0
804	96	x		3.5	5.3	4.6	5.0
805	96	x		2.7	3.2	4.2	4.6
806	95	x		5.0	5.3	5.3	4.4
807	95	x		3.1	6.7	b	
808	95	x		3.3	4.6	3.7	4.4
809	95		x	5.8	7.3	6.4	5.3 *
810	94	x		4.3	4.6	4.2	3.2

Table 2. (cont.)

Office Training Curriculum--Girls							
Pupil	Intelligence Quotient	Curriculum Choice		Average Sigma Scores			
		Approved	Not Approved	IX	X	XI	XII
811	94	x		4.3	5.1	5.7	4.6
812	94	x		3.9	6.1	5.0	4.1
813	93	x		3.5	5.7	5.8	4.6
814	93	x		3.9	5.7	b	
815	93		x	5.0	6.1	5.0	4.1
816	92	x		4.3	6.1	5.3	4.6
817	91	x		3.5	4.6	5.3	5.0
818	91	x		5.0	5.7	5.3	b
819	91	x		3.1	4.8	4.8	4.6
820	91	x		4.7	3.8	5.0	5.3
821	88		x	5.0	4.6	6.0	4.1
822	88		x	3.1	5.0	4.2	4.2
823	87	x		3.9	7.1	5.3	5.0 *
824	86	x		3.5	6.5	4.6	5.7 *
825	85		x	3.9	7.1	b	
826	84	x		5.0	5.0	5.0	b
827	82	x		3.5	5.3	4.8	4.2
828	79	x		4.3	5.0	5.3	5.5
829	78		x	5.2	6.3	a	
830	75	x		2.7	4.8	4.1	5.7

Key

a. Left school--moved from city
b. " " --went to work
c. " " --entered private school
d. " " --entered Trade School
e. " " --ill health
f. Changed to Language Curriculum
g. " " Certificate "
h. Changed to Mathematics Curriculum
i. " " Academic "
j. " " Academic V "
k. " " Business "
l. " " Office Training "
m. " " Cooperative H. S. and Trade
o. Joined armed service
* Spent 4 years in high school

One of the interesting aspects of this study is the large number of pupils who elected one of the college-preparatory curricula. A total of 421, or approximately 50 per cent of the total number, were enrolled in the language, certificate, and mathematics curricula (Column 7, Table 3). In addition 182 (22 per cent) elected academic I, II, III, or IV, all of which prepare for higher schools, making a total of 603 pupils (73 per cent) who planned to continue their education beyond high school. Only 64 pupils (8 per cent) elected academic V, which provides a general high-school course, while 73 boys (9 per cent) chose the business curriculum, and 90 girls (11 per cent) the office training curriculum.

Another rather startling feature is the large number of pupils who completed the high school course. Five hundred forty-four (65 per cent) were graduated from the same curriculum which they had elected in Grade IX; 99 (12 per cent) changed to another curriculum before graduation; 83 (10 per cent) left to enter private school; 52 (6 per cent) moved out of the city; and 56 (7 per cent) left because of ill health or a desire to go to work or enter the armed service. If we can assume that the 83 pupils who left to enter private school were probably graduated from high school, we have a total of 726 or 87 per cent who undoubtedly finished their high school course. This number does not include the 52 pupils who moved from the city, at least half of whom were probably graduated from senior high school.

Of the 99 pupils (Column 3, Table 3) who changed their curriculum in high school, 21 (21 per cent) were doing unsatisfactory work. The

remaining 78 had evidently changed their plans as to their future careers.

Table 3. Numbers of Pupils Enrolled in Seven Curricula of Newton High School Who Remained in Original Curriculum, Changed to Another Curriculum, Left to Enter Private Schools, Moved from City, or Left for Other Reasons

Curricula	Number Who					Total Numbers Enrolled
	Remained in Original Curriculum	Changed to Another Curriculum	Left to Enter Private Schools	Moved from City	Left for Other Reasons	
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Language.....	118	24	31	12	0	185
Certificate.....	116	33	32	16	1	198
Mathematics.....	20	9	7	2	0	38
Acad. I,II,III,IV	133	10	13	16	10	182
Academic V.....	32	11	0	1	20	64
Business.....	47	9	0	2	15	73
Office Training...	74	3	0	3	10	90
Total.....	540	99	83	52	56	830

For purposes of comparison the pupils in each curriculum have been listed according to their intelligence quotients. (Tables 4 to 10 inclusive.)

Language Curriculum.-- This group included 90 boys and 96 girls, whose intelligence range was from 96 to 137. The curriculum choice of the top third was approved in every case; in the middle third, the choices of two boys and one girl were not approved; in the lowest third,

the choices of four boys and three girls were not approved, making a total of 10 (6 per cent) whose curriculum choice met with the disapproval of the advisers. Of these 10 pupils (six boys and four girls) four boys, three of whom were failing, left to enter private school; one was obliged to take an extra year in high school; and one, after changing to the certificate curriculum, also took an extra year. The four girls fared better, for one was graduated from the language curriculum, one whose work was of a passing grade, left to enter private school; one changed to the academic curriculum; and the fourth, who moved from the city, was doing passing work at the time of her withdrawal from school.

Table 4 shows that in Grades IX, X, and XII the marks of the girls in the top third were highest; those of the boys in the lowest third were poorest. With the exception of the top third in Grade XI, where the boys received the higher scores, the marks of the girls were better than those of the boys. There seems also to be a rather close correlation between the average marks and the intelligence quotients.

A decided drop in the marks appears in Grade X with a gradual rise in XI and XII. (Columns 6, 7, 8, and 9, Table 4.) There are several apparent reasons for this sharp decline. These pupils went from one building containing approximately 1000 pupils to a school consisting of three buildings and 2500 pupils. They were overwhelmed by the size of the school and confused by its complexity. They found themselves in classes with strange pupils and teachers. New activities were open to them, competition along all lines was keener, and before

Table 4. Numbers of Boys and Girls in the Language Curriculum Listed According to Their Intelligence Quotients; Numbers Whose Curriculum Choice Was Approved or Not Approved by Their Advisers; and Their Average Sigma Scores for Grades IX, X, XI, and XII.

Language Curriculum	Number of Pupils	Range of Intelligence Quotient	Number Approved	Number Not Approved	Average Marks			
					IX	X	XI	XII
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Top Third								
Boys.....	30	123-133	30	0	2.9	4.0	3.6	3.4
Girls....	32	123-137	32	0	2.8	3.7	3.7	3.0
Middle Third								
Boys.....	30	115-122	28	2	3.3	4.4	4.1	3.8
Girls....	32	116-123	31	1	2.9	4.2	3.7	3.7
Lowest Third								
Boys.....	30	96-115	26	4	3.7	5.0	4.5	4.2
Girls....	31	96-116	28	3	3.3	4.6	4.4	3.9

they realized what was happening, their academic work had begun to suffer. As they grew more familiar with their surroundings, their marks improved until in Grade XII they were much higher than in X and XI, but still not so high as in Grade IX.

Certificate Curriculum.-- One hundred ninety-eight pupils (112 boys and 86 girls) comprised this group, whose intelligence quotients ranged from 92 to 140. Although this is also a college-preparatory group, we find that the curriculum choices of 42 pupils, or 21 per cent, were not approved, in contrast with 6 per cent in the language curriculum. Again the largest number of disapprovals (21) appears in the lowest third, with 17 in the middle group, and 4 in the top third.

Table 5. Numbers of Boys and Girls in the Certificate Curriculum Listed According to Their Intelligence Quotients; Numbers Whose Curriculum Choice Was Approved or Not Approved by Their Advisers; and Their Average Sigma Scores for Grades IX, X, XI, and XII.

Certificate Curriculum	Number of Pupils	Range of Intelligence Quotient	Number Approved	Number Not Approved	Average Marks			
					IX	X	XI	XII
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Top Third								
Boys.....	38	117-140	34	4	3.9	4.9	4.8	4.0
Girls....	29	118-133	29	0	3.2	4.2	3.9	3.7
Middle Third								
Boys.....	37	109-117	25	12	4.5	4.9	4.9	4.8
Girls....	29	108-117	24	5	4.4	5.3	4.5	4.2
Lowest Third								
Boys.....	37	93-109	25	12	4.4	5.6	5.0	4.6
Girls....	28	92-108	19	9	4.4	5.3	4.8	4.1

Of the 28 boys who were not approved, one succeeded in doing satisfactory work in this curriculum; nine (three of whom were failing) left to enter private school; five changed to the academic curriculum; 10 were obliged to spend an extra year in high school; and three (one of whom was failing) moved from the city. One of the 14 girls who were not approved was successful in this curriculum; four (three of whom were failing) entered private school; five changed to the academic curriculum; three took an extra year in high school; and one, who was doing passing work, moved out of Newton.

A comparison of Tables 4 and 5 reveals that although there is little difference in the intelligence span of the two groups, the sigma scores of the pupils in the certificate curriculum are from half

a point to a full point lower than those of the pupils in the language curriculum. This difference may be traced to the poorer study habits of the former group and to the fact that most of the certificate-curriculum pupils had varied outside interests. Many more than in the language curriculum became leaders in school activities. The same sudden drop in the Grade X marks with a gradual rise in XI and XII as was found in the language curriculum appears also in this curriculum.

Mathematics Curriculum.-- As this curriculum is intended for pupils who plan to enter technological colleges or schools of engineering, we usually expect to find it composed of students with high mentality. However, the intelligence-quotient range of the 38 boys who comprised this group was 92 to 124, lower than that of the other two college-preparatory groups. The curriculum choices of one pupil in the top third and five in the lowest third were not approved, making a total of six or 16 per cent. This percentage is larger than that of the language, but smaller than that of the certificate curriculum.

The history of the six boys whose curriculum choices were not approved was as follows: one did a passing grade of work in this curriculum; one who was doing satisfactory work moved out of the city; two who were failing left to enter private school; and two spent an extra year in high school.

The average marks, also, were lower than those of the language-curriculum pupils, but higher than those in the certificate curriculum. It is interesting, and perhaps significant, to note that the Grade XII mark of the middle third in which all pupils' choices were approved was higher than that of the top third, in which the choice of one

Table 6. Numbers of Boys in the Mathematics Curriculum Listed According to Their Intelligence Quotients; Numbers Whose Curriculum Choice Was Approved or Not Approved by Their Advisers; and Their Average Sigma Scores for Grades IX, X, XI, and XII.

Mathematics Curriculum	Number of Pupils	Range of Intelligence Quotients	Number Approved	Number Not Approved	Average Marks			
					IX	X	XI	XII
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Top Third								
Boys.....	13	121-124	12	1	3.1	4.4	4.3	4.2
Girls....	0							
Middle Third								
Boys.....	13	114-121	13	0	3.4	4.5	4.7	4.1
Girls....	0							
Lowest Third								
Boys.....	12	92-114	7	5	4.1	5.7	4.6	4.8
Girls....	0							

pupil is not approved.

The general decline and rise of marks from Grades IX through XII is similar to that of the other two college-preparatory groups.

Academic I, II, III, and IV Curricula.-- This is the second largest group of pupils, comprising 77 boys and 105 girls, a total of 185. Their intelligence quotients range from 84 to 131, which is lower than any of the three college-preparatory groups. The total number of pupils whose curriculum choice was not approved was 25 (11 boys and 14 girls) or 14 per cent of the group enrollment. This was a greater percentage than that of the language but smaller than that of the certificate or mathematics curriculum. Since the

standards of this curriculum are not so high as those of the college-preparatory curricula, one may well expect fewer non-approvals.

Table 7. Numbers of Boys and Girls in the Academic I, II, III, IV Curricula, Listed According to Their Intelligence Quotients; Numbers Whose Curriculum Choice Was Approved or Not Approved by Their Advisers; and Their Average Sigma Scores for Grades IX, X, XI, and XII.

Academic I,II,III,IV Curricula	Number of Pupils	Range of Intelligence Quotient	Number Approved	Number Not Approved	Average Marks			
					IX	X	XI	XII
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Top Third								
Boys.....	26	108-123	23	3	4.6	5.1	5.1	4.5
Girls....	35	108-131	33	2	4.3	4.7	4.3	4.2
Middle Third								
Boys.....	26	98-108	22	4	4.4	5.5	5.3	5.2
Girls....	35	101-108	33	2	4.6	5.0	4.8	4.4
Lowest Third								
Boys.....	25	84-98	21	4	4.5	5.3	5.1	4.8
Girls....	35	85-101	25	10	4.6	5.4	5.0	4.6

In the case of the 11 boys whose choice was not approved, no one completed his course successfully; two changed to an easier curriculum; four took an extra year in high school; three who were failing left to go to work; one who was not passing moved from the city; and another who was not passing left to join the navy. Of the 14 girls two were successful in the curriculum of their choice; three, of whom two were failing, left to enter private school; three changed to an easier curriculum; four took an extra year in high school; one who had changed to academic V left to go to work; and one who was failing

withdrew because of ill health.

The marks, while not so high as those of the three previous curricula, show the same general tendency to drop in Grade X and rise in Grades XI and XII.

Academic V Curriculum.-- Sixty-four pupils, 39 boys and 25 girls, comprised this group. As indicated on page 12, this curriculum has developed into a sort of catchall for pupils who lack both the mental ability to carry on academic work and the mechanical ability to become a skilled worker. Table 2, pages 33-35, shows that only nine pupils (six boys and three girls) had an intelligence quotient over 100. The range of intelligence quotients was 75 to 109. Since the requirements of the curriculum are very low, it is not surprising that we find the curriculum choice of only one pupil disapproved. That boy was advised to enter the Trade School, but preferred to go to high school. Here he failed at the end of Grade X and left school to go to work.

Even in this curriculum we find the same pattern followed in the fall and rise of marks, except that with this group the average mark of both boys and girls in the top third is higher in Grade XI than in Grade XII. In the middle third this is true of the boys, and in the lowest group of the girls.

Business Curriculum.-- As stated in Chapter, page 4, this curriculum was intended primarily for boys who wish to enter the commercial world directly from high school. Eighty-three boys. with intelligence quotients ranging from 79 to 127 elected this curriculum in 1938, 1939, and 1940. The elective choice of seven (8 per cent)

Table 8. Numbers of Boys and Girls in the Academic V Curriculum, Listed According to Their Intelligence Quotients; Numbers Whose Curriculum Choice Was Approved or Not Approved by Their Advisers; and Their Average Sigma Scores for Grades IX, X, XI, and XII

Academic V Curriculum	Number of Pupils	Range of Intelligence Quotient	Number Approved	Number Not Approved	Average Marks			
					IX	X	XI	XII
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Top Third								
Boys.....	13	94-109	13	0	4.4	4.9	4.5	4.8
Girls....	9	89-106	9	0	4.9	4.9	4.6	4.7
Middle Third								
Boys.....	13	84-93	13	0	4.1	4.7	4.9	5.0
Girls....	8	81-89	8	0	5.1	5.1	4.9	4.6
Lowest Third								
Boys.....	13	72-84	12	1	4.8	5.7	5.5	5.3
Girls....	8	75-80	8	0	5.2	5.2	4.4	4.9

was not approved. One of these boys was in the top third, one in the middle third, and five in the lowest third. Of these seven boys, two were graduated from this curriculum; one spent an extra year in high school; two changed to Trade School after failing in the business curriculum; one changed to academic V and then left to go to work; and one who was failing left to enter a C.C.C. Camp.

In this group, also, the marks show a decided drop in Grade X, but in the top and lowest third, the marks are higher in Grade XI than in Grade XII. In this respect they are comparable to the academic V curriculum.

Table 9. Numbers of Boys in the Business Curriculum, Listed According to Their Intelligence Quotients; Numbers Whose Curriculum Choice Was Approved or Not Approved by Their Advisers; and Their Average Sigma Scores for Grades IX, X, XI, and XII.

Business Curriculum	Number of Pupils	Range of Intelligence Quotient	Number Approved	Number Not Approved	Average Marks			
					IX	X	XI	XII
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Top Third								
Boys.....	25	110-127	24	1	3.2	4.5	4.3	4.5
Girls....	0							
Middle Third								
Boys.....	24	99-110	23	1	3.7	4.9	4.4	4.3
Girls....	0							
Lowest Third								
Boys.....	24	79-99	19	5	4.0	5.7	4.9	5.0
Girls....	0							

Office Training Curriculum.-- The 60 girls who comprise this group have an intelligence quotient range from 85 to 122. The curriculum choice of every pupil in the top third was approved by the advisers, but two in the middle third and six in the lowest third were not approved. Three of these eight girls, however, completed their work satisfactorily; one was obliged to take an extra year in high school, two were changed to the academic curriculum, one who had been advised to take academic V was failing when she moved out of the city; and another who was failing withdrew from school to go to work.

The marks of these girls are higher than those of the boys in the business curriculum. The general pattern, however, is more

Table 10. Numbers of Girls in the Office Training Curriculum, Listed According to Their Intelligence Quotients; Numbers Whose Curriculum Choice Was Approved or Not Approved by Their Advisers; and Their Average Sigma Scores for Grades IX, X, XI, and XII.

Office Training Curriculum	Number of Pupils	Range of Intelligence Quotient	Number Approved	Number Not Approved	Average Marks			
					IX	X	XI	XII
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Top Third								
Boys.....	0							
Girls....	30	105-122	30	0	3.3	4.1	4.0	3.7
Middle Third								
Boys.....	0							
Girls....	30	98-105	28	2	4.0	4.7	4.6	4.4
Lowest Third								
Boys.....	0							
Girls....	30	75-97	24	6	3.9	5.3	4.9	4.7

nearly like that of the college-preparatory groups in that there is a sharp drop in Grade X, followed by a steady rise in Grades XI and XII.

Before any conclusion can be drawn as to the accuracy of the advisers' judgment in approving or disapproving the curriculum choices, it is necessary to investigate and compare the high-school history of both the approved and non-approved pupils.

In computing the success or non-success of the pupils listed in the following tables (11 and 12), a child was considered successful if he was graduated in three years from the curriculum of his choice or an equally difficult curriculum, or if he was receiving a passing

mark when he withdrew from high school to enter private school or for any other reason. Many pupils who take an extra year to complete their senior-high-school course do so on the recommendation of their ninth-grade adviser. However, since this advice is usually given because of weak scholastic standing in the junior high school, those pupils who spent four years in the senior high school are listed as unsuccessful.

Table 11. Numbers of Approved Pupils in Each Curriculum Successful in High School and Numbers Not Successful.

Curricula	Numbers		
	Successful	Not Successful	Total
(1)	(2)	(3)	(4)
Language.....	171	4	175
Certificate.....	142	14	156
Mathematics.....	28	4	32
Academic I, II, III, IV.....	123	34	157
Academic V.....	59	4	63
Business.....	63	3	66
Office Training.....	78	4	82
Total.....	664	67	731

Of the 67 approved pupils who were unsuccessful, 34 spent an extra year in high school; nine changed to an easier curriculum; seven were failing when they left to enter private school, six when they moved from the city, 10 when they withdrew to go to work, and

one when he left to go to Trade School.

However, 91 per cent of those pupils whose curriculum choices were approved by their advisers were successful in their high-school life.

Table 12. Numbers of Non-Approved Pupils in Each Curriculum Successful in High School and Numbers Not Successful.

Curricula	Numbers		
	Successful	Not Successful	Total
(1)	(2)	(3)	(4)
Language.....	4	6	10
Certificate.....	12	30	42
Mathematics.....	2	4	6
Academic I, II, III, IV.....	3	22	25
Academic V.....	0	1	1
Business.....	2	5	7
Office Training.....	3	5	8
Total.....	26	73	99

Of the 73 non-approved pupils who were unsuccessful, 27 spent an extra year in high school; 18 changed to an easier curriculum; 13 were failing when they withdrew to enter private school, three when they moved from the city, six when they left to go to work, three when they changed to Trade School, two when they joined the Navy and a C.C.C. Camp, and one when she was forced to leave because of ill health.

Therefore, 74 per cent of the non-approved were unsuccessful in the Newton High School.

The final chapter of this thesis will include a summary of the findings of the study, the conclusions that may be drawn from them, and a list of recommended suggestions.

CHAPTER III

SUMMARY AND RECOMMENDATIONS

In a study[1] entitled Education in Forty-Eight States, the Advisory Committee on Education makes this statement. "Out of every 1000 pupils who entered the high school in 1930-31, only 491 were graduated four years later. It would appear that the modern high school holds somewhat less than one half of its entering students until the completion of the course. This is a highly wasteful use of valuable human resources."

While the above statement refers to the country as a whole, and Newton is, in many respects, a rather favored city, it is, nevertheless, gratifying to note that approximately 87 per cent of the pupils in this study were graduated from the Newton High School or some secondary private school. This is a conservative percentage as it does not include the 52 pupils who moved from the city, at least half of whom probably completed their high school course (Chapter II, page 41).

In the selection of a curriculum it is interesting to note the large number of pupils who chose college-preparatory curricula. Approximately 50 per cent of the total number were enrolled in curricula which prepared for colleges requiring either the College Board

1/Payson Smith, et al., Education in the Forty-Eight States, The Advisory Committee on Education Staff Study No. I, Washington, D. C., 1939, p. 31.

examinations or certification. In addition, another 22 per cent selected subjects which prepare for entrance to junior colleges, teachers colleges, kindergarten-training schools, and business colleges. This seems too large a percentage, especially in the Weeks School, where at least one half of the pupils come from homes with moderate or low incomes. However, most parents, including both the college graduates and those who feel they have been denied a college education, insist that their children must prepare for college and are willing to make great sacrifices, if necessary, in order to attain that end. For that reason the enrollments in the business and office training curricula are too small, but even in the former many boys are enrolled who should have been sent to one of the trade schools. However, the experiences of the present war may teach parents the value of a training in industrial arts.

Tables 6-10 seem to indicate a general correlation between the marks and the intelligence quotients. However, since this is an average score and so many factors other than intelligence quotient enter into the question of achievement, it is unsafe to attempt to draw a general conclusion from these data.

In Table 8 it is interesting to note such individual cases as a girl with an intelligence quotient of 96 who completed the language curriculum successfully in three years, while a boy, whose intelligence quotient was 127, changed to the academic curriculum because he was failing in the certificate curriculum. The fact that there are curricula in the Newton High School--academic, business, and office

training--in which boys and girls with intelligence quotients in the 80's and even the 70's can meet with success indicates that the school is planning its program to supply the vital needs of all its pupils.

Although in advising pupils about their curriculum choices in the senior high school, the junior-high-school teachers lay much more emphasis upon past academic achievement than upon the intelligence quotient, Tables 6-10 show that the largest number of disapprovals fall in the middle and lowest thirds of the pupils grouped in terms of intelligence quotients. Table 2, also, bears out the fact that in most cases, especially in the college-preparatory groups, the pupils in the lower intelligence-quotient ranges receive lower marks than those in the upper third of the list.

The general pattern of a sudden drop in the Grade X marks with a gradual rise in Grades XI and XII has been noted in all the curricula. The drop in Grade X was partially explained by the writer in Chapter II, pages 43-44, but the fact that the Grade IX marks seldom recur in Grade XII, where conditions are very similar to those in the ninth grade, seems to call for a further investigation. Part of the difficulty may be traced to the difference in the marking systems used by the junior-high and senior-high schools, and the writer hopes that a study of this question will soon be undertaken by the Newton school authorities.

On the whole, the junior-high-school teachers seem to have shown good judgment in the advice given to their pupils concerning curriculum courses, since 91 per cent of the approved pupils were successful in

their high-school life, and 74 per cent of the non-approved group were not successful. Apparently the 26 per cent in the latter group who were successful, met with a needed challenge in the high school. A study of these individual cases to determine the reason for their success might prove profitable as well as interesting.

In the following summary the writer attempts to answer the questions raised by her in Chapter I, page 5.

1. Six hundred ninety, or 85 per cent of the Weeks pupils promoted to the Newton High School in 1938, 1939, and 1940 succeeded in maintaining a passing mark or better in the curriculum selected in Grade IX or an equally difficult curriculum.
2. Ninety-one per cent of the pupils whose curriculum choice was approved by the ninth-grade teachers were successful in high school. Seventy-four per cent of those whose curriculum choice was not approved were not successful.
3. A sudden drop in marks was noted between Grades IX and X followed by a gradual rise in XI and XII, but failing to reach the level of Grade IX.
4. An apparent correlation was noted between the average sigma scores and the average intelligence quotients.

Recommendations.--

1. That the question of adopting a uniform marking system in Newton be considered by the Superintendent of Schools and the Newton Teachers Council.

2. That a study of the marks of Grades IX, X, XI, and XII be undertaken by a committee consisting of junior-high and senior-high-school teachers to determine the cause of the decline of marks in the senior high school.
3. That Newton parents be educated as to the importance of selecting curricula suited to the needs and capacities of their children.

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